ENVIRONMENTAL ASSESSMENT OF THE NAFTA

THE MEXICAN ENVIRONMENTAL REGULATION POSITION

ENVIRONMENTAL ASSESSMENT OF THE NORTH AMERICAN FREE TRADE AGREEMENT

The Mexican Environmental Regulation Position

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BY:

Paul West
Director
Environmental Studies Program
University of Victoria

and

Paul Senez
Research Associate
Environmental Studies Program
University of Victoria

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EXECUTIVE SUMMARY:

Is Mexico a polluters' haven compared with Canada or the United States? This background paper examines the environmental standards of Mexico and the potential impact of these standards on jobs, businesses and investment in B.C. under a North American Free Trade Agreement. The purpose of this paper is to provide an overview of the environmental implications -- it is not intended as a comprehensive or definitive study.

Background

On June 10, 1990, U.S. President George Bush and Mexican President Carlos Salinas de Gortari announced that they had determined that a "comprehensive Free Trade Agreement" was the best vehicle to achieve a vigorous partnership for sustained economic growth. Such growth would open markets so that trade and investment could expand further.[1]

On February 5, 1991, the prime minister of Canada and the presidents of the United States and Mexico announced their intention to pursue a North American Free Trade Agreement (NAFTA). The three leaders directed their respective trade ministers to negotiate a comprehensive trade-liberalizing agreement.

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[1] Canada, Department of Finance. Canada and a Mexico-United States Trade Agreement. International Economic Relations and International Trade and Finance Branch, Working Paper. July 1990. p.1.

It was envisioned that the agreement would:

- o eliminate obstacles to the flow of goods, services and investment;
- o provide intellectual property rights protection; and
- o establish a fair and expeditious dispute settlement mechanism.[2]

The Canadian approach to the NAFTA negotiations builds on the Canada-U.S. Free Trade Agreement implemented in 1988.[3]

The environment has been accepted as an issue in the NAFTA negotiations.

The Environmental Issue and NAFTA

How can the environmental issue be included in the NAFTA negotiations? It is a difficult question.

Historically, the link between trade negotiations and environmental concerns has been resisted, but it seems likely that this link will have increasing global importance. This change in emphasis will be enhanced by:

- o developments at GATT, especially the resurrection of a GATT trade and environment committee, which has been dormant since its creation in 1971; and

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[2] Centre for Canadian-American Business Studies. North American Free Trade Negotiations: A Situation Report. Simon Fraser University. August 1991. p.10.

[3] Ibid. p.1.

- the impact of the United Nations Conference on Environment and Development (UNCED '92, a.k.a. The Earth Summit) meeting in Brazil.

With respect to the NAFTA, the environmental issue has two main components:

- a fear that recourse to environmental protection requirements could be used as a pretext for restricting fair trade; and
- a concern that lower levels of environmental standards and enforcement within Mexico could give that country a competitive advantage within North America, making it a "polluters' haven."[4]

Mexico's Environmental Record

Mexico has strong environmental standards but a record of lax enforcement. Legislation to control pollution has been on the books since at least 1971, but the regulations have been generally unenforced and, as a result, ineffective in combatting rising levels of pollution.

Because the overall environmental compliance record lacks reliable documentation, sectoral pollution abatement performance (for example, in pulp and paper) has not been readily open to assessment.

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[4] Page, Timothy I. The North American Free Trade Agreement and its Implications for Canada's Relationships with the Countries of the Asia-Pacific. August 1991. p.14.

Pollution Control Costs: Are They a Factor?

It is difficult to determine whether pollution control costs are a **specific** factor in a firm's decision to move to Mexico from B.C. or elsewhere in Canada. Several factors may be involved in the decision-making process.

For example, it is difficult to assess whether a company is legitimately moving part of its operations to Mexico to be closer to the target market, or whether that company is simply seeking to take advantage of lower pollution costs or laxer environmental standards.

In some sectors, a combination of lax enforcement of environmental regulations **and** subsistence-level wages could result in the transfer of Canadian industrial activity to countries such as Mexico.

Canada's Position on the Environment

Although Canada is a party to the NAFTA talks, the Mulroney government has yet to issue a policy statement defining the importance of the environment in the Canadian position.

From an historical perspective (the U.S.-Canada Free Trade Agreement negotiations), Canadian policy would likely parallel that of the U.S. administration; that is, a separation of trade and environment issues.

This approach may be shortsighted, given the current trend towards integration of environment and economy issues.

Some Policy Considerations

A policy of separating trade and environmental issues gives rise to two considerations:

- **When an individual country adopts new environmental regulations, production costs can rise above those found in other countries.** This can lead to domestic political pressure to reduce the national environmental standard, as well as pressure to impose compensatory tariffs or domestic subsidies to offset the added costs of the new regulations.
- **Concerns about the impact of new environmental regulations on international competitiveness can lead to undesirable escalation in the level of protection.** Actions by one country can lead to counteractions by others.[5]

It is clear that greater co-operation between trade and environment officials is needed, to assure that trade and environmental policies complement and reinforce each other whenever possible.

In British Columbia, proposed new environmental standards, legislation and compliance regimes should be reviewed from the perspective of the current regulatory climates of our major trading partners. Crises in competitiveness could then be

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[5] Anonymous. The Link Between Trade and Environment Policy. Draft U.S. paper. Date unknown. p.7.

anticipated, particularly for specific sectors. (That recommendation applies to a number of countries, not just Mexico.)

Specific NAFTA Environmental Issues

The specific environmental issues of NAFTA are complicated by the shared Mexico-U.S. border. There is every reason to believe that the American position is related to environmental and political strategic national interest regarding their southwest border.

The ecological and public health crisis is documented (somewhat fragmentarily) for the border area. Pollution from Mexico is being "exported" across the border and is affecting the health of Americans. The U.S. commitment to achieve a high degree of environmental protection on **all** American soil is driving the search for a remedy in NAFTA -- for the Americans, this is the prime environmental issue.

The EPA analysis for the Bush administration is crafted in terms of net border effects, not net Mexican state-of-environment effects.

From a U.S. perspective, then, stabilizing and containing transborder air and water pollution is of paramount importance. Distributing industry throughout Mexico would reduce border-zone (maquiladoras) production and relieve a strategic pressure on the southern flank of the U.S.

But not all of the border-area pollution is caused by industry. Due to poor municipal infrastructure in Mexico, emissions and effluents from domestic sources are as great a border problem as direct industrial pollution. Reducing population pressure at the border could alleviate this.

There is another positive strategic factor for the United States -- reducing the border population, and even raising Mexican living standards, through NAFTA, could reduce the migration of Mexican nationals to the U.S. Emphasis on demographic (immigration) effects underscores the strategic nature of the Bush approach.

None of these trans-border issues affect British Columbia directly, and they are not factors in the province's position on the environment issue in NAFTA.

The only issue that concerns B.C. is the effect on competitiveness. That issue involves several considerations:

- capital investment on pollution control;
- abatement or operation costs, including monitoring and other compliance regimes;
- provisions for infrastructure, specifically hazardous waste disposal, that may be demanded from companies as the social situation worsens;
- possible repercussions of GATT's acceptance of Green accounting (including externalities as legitimate subsidies of production);

- o the destabilizing social effects of "crisis" degradation; and
- o the importance of competitive infrastructure in determining employee effectiveness in increasingly sophisticated production climates.

Potential savings through reduced abatement expenditures for specific industry sectors must be weighed against these considerations.

Primary resource-based, low-tariff, difficult-to-relocate (capital-intensive) industries have high abatement costs. Such industries are not labour-intensive, and are not currently considered of high priority for re-investment in the changing global economy.

These considerations are largely generic, and may form a **template for consideration of the environmental issue** in competitiveness discussions with other trading partners.

The Future Mexican Regulatory Climate

The concept of a "polluters' haven" is deceptively simple, and can obscure analysis. While Mexico's environmental performance has been lacking, there are strong signs of improvement.

Before a British Columbia firm decides to move to Mexico because of lower environmental standards or enforcement, both current **and** future Mexican regulatory climate must be assessed.

Current Mexican government initiatives include:

- an almost eight-fold increase in the budget of SEDUE (Secretaria de Desarrollo Urbano y Ecologia -- Mexico's counterpart to the U.S.'s EPA and Environment Canada's Conservation and Protection Branch), a large part of which will be used to enhance enforcement efforts;
- negotiations for an $84-million loan from the World Bank that will be used mainly for industrial inspections;
- the introduction of measures to bring existing sources into compliance with current environmental standards and regulations; and
- an announcement that Mexico would spend an **additional** $464 million to protect the environment along its border with the U.S. (Over the next three years, Mexico is allotting an **extra** $223 million to build sewage plants, $26 million for solid waste disposal, $44 million to create border-area nature preserves and $171 million for roads and public transportation.[6])

These initiatives, when combined with the country's public health crisis, indicate that any comparative economic advantage would be short-term. Companies choosing to relocate to Mexico could ultimately face expensive fitting of pollution control equipment and levies for provision of infrastructure (such as

[6] Maggs, John. "Mexico Acts to Control Pollution Along Border." Journal of Commerce. October 25, 1991. p.1A.

sewage plants, landfills, etc.). These costs would negate any initial advantage.

In addition, any cost advantage due to lax pollution controls would be countered by the disadvantages of the available human resources. Ironically, these disadvantages are due in part to the rampant pollution. Per-employee production levels have been traditionally low in Mexico; achieving higher levels will be difficult.

There is enough evidence of wide-spread environmental degradation in Mexico to conclude that a form of environmental emergency exists, particularly in Mexico City. Dealing with the resulting impact on public health has become an internal priority that has the potential to be destabilizing, or at least politically urgent, both in the near future and over the long term.

There is no basis for assuming that Mexican policy is deliberately lax. The presumption of Mexico's positive interest in **improving** environmental control is the soundest basis for evaluating NAFTA's net environmental advantage for B.C.

A Summary of Factors Affecting Siting Decisions

Human resource and infrastructure considerations increasingly override environmental regulatory factors in siting decisions. Pulp industry economists, for example, project the **same** initial capital investment levels in pollution control

technology, regardless of where in the world a new plant is to be located.

Social stress and the need for crisis management of environmental emergencies may actually act as disincentives for extensive capital investment in countries where these conditions prevail, such as Mexico. Companies will increasingly seek locations with the extensive stable infrastructure (such as waste management services) and able workforce that facilitate modern technologically advanced operations.

In addition, new market forces such as consumer preference or even boycott caused by a negative public perception, will likely become increasingly important in siting decisions.[7] These market forces will further detract from gains in overall economic performance due to lax pollution controls. International pressures will force continued destabilizing, and costly, changes towards tighter regulation in lax jurisdictions.

Therefore, it would seem that the environmental compliance issue in NAFTA is of minor importance in determining trade policy or in its effect on industrial investment in B.C. However, trade and environment are sufficiently interrelated that close co-ordination of analysis in these two areas should be maintained.

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[7] From Multi-Stakeholder Working Group on Pulp Mill Regulation in British Columbia; Simon Fraser University, Vancouver; December 12, 1991.

INTRODUCTION

On June 10, 1990, U.S. President George Bush and Mexican President Carlos Salinas de Gortari announced that they had determined that a "comprehensive Free Trade Agreement" was the best vehicle to achieve a vigorous partnership for sustained economic growth that will open markets so that trade and investment can expand further.[8] On February 5, 1991, the Prime Minister of Canada and the Presidents of the United States and Mexico announced their intention to pursue a North American Free Trade Agreement (NAFTA). The three national leaders charged their respective trade ministers with the goal of negotiating a comprehensive trade-liberalizing agreement. The Canadian approach to the NAFTA negotiations builds on the Canada-U.S. FTA implemented in 1988.[9] It is envisioned that a North American Free Trade Agreement will progressively eliminate obstacles to the flow of goods, services and investment; provide intellectual property rights protection; and establish a fair and expeditious dispute settlement mechanism.[10]

The purpose of this background paper is to focus on the environmental implications of a North American Free Trade

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[8] Canada, Department of Finance. Canada and a Mexico-United States Trade Agreement. International Economic Relations and International Trade and Finance Branch, Working Paper. July 1990. p.1.

[9] Centre for Canadian-American Business Studies. North American Free Trade Negotiations: A Situation Report. Simon Fraser University, August 1991. p.1.

[10] Ibid. p.10.

Agreement. The primary question this paper addresses is whether or not Mexico is a polluter's haven compared to Canada or the United States. The particular focus of this paper is to examine the environmental standards of Mexico and the impacts of such on the flow of jobs and businesses, and investment from British Columbia. The paper is not intended to be comprehensive or definitive, but attempts to provide an overview of the various implications of freer trade with Mexico from an environmental perspective.

HISTORICAL BACKGROUND

Historically, development in Mexico, like most industrialized nations, has been accompanied by an increase in the degradation of the ecology. This deterioration includes the deforestation of tropical rainforests for agricultural production; soil erosion; high levels of pollution from industry and automobiles in urban centres like Mexico City; inadequate solid and liquid waste disposal infrastructures which in turn can pollute the drinking water supply; and large scale deterioration of marine and land resources and contamination of rivers and estuaries in such areas as the Gulf of Mexico and along the Mexican border with the United States.

Mexico is so big and well-endowed with natural resources and has such a large labour force, that unfortunately it has not yet become apparent to most producers that their continuing degradation of the environment is having deleterious effects on their own profitability. At present, common practice is for a producer to simply pick up and move when environmental damages unduly raise production costs. The government appears unable or unwilling to confront these environmental problems by obliging the contaminators to clean up their operations or cease operations, much less pay for past damages. Its own lack of resources precludes official action to resolve these problems. New industrial projects, like the expanding petrochemical complex on the Gulf Coast (which processes crude oil into a whole range

of derivatives), are being designed without regard for environmental consequences.[11]

The problem is exacerbated along the border. In 1966, the U.S. and Mexican governments established the Mexican Border Industrialization Plan (Maquiladora scheme), whereby U.S. manufacturers could set up facilities "in bond" in northern Mexico, to use imported parts, assemble them and re-export them to the United States.[12] Subsequently, because of its popularity, the scheme was broadened in 1972 to cover all of Mexico, and was therefore, no longer merely a border industrialization program, yet 77 per cent of the maquiladoras are located in the border region. Nonetheless, all maquiladora operations continue to be distinguished by the "in-bond" nature of their production and by the fact that they are primarily reared to service export markets. In this way, manufacturers can take advantage of

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[11] Barkin, David. "State Control of the Environment: Politics and Degradation in Mexico." Capitalism, Nature and Socialism. Vol. 2, No.1, 1991. pp.98, 99.

[12] A "maquiladora" refers to a processing or assembly plant located in Mexico which typically receives component parts or raw materials in-bond from a United States or other non-Mexican parent corporation for assembly or processing into a finished or semi-finished state for export. (Some maquiladoras, however, are Mexican owned). "Maquiladora" stems from the Spanish word "maquila," meaning the toll of grain or flour paid to the miller or lord of a manor for the grinding of grain. Now the term "maquila" refers to the labour and services provided, while a "maquiladora" is the actual production plant. Maquiladoras are called "in-bond assembly plants" because the Mexican government requires establishment of a bond to ensure that an item imported under the maquiladora program will be subsequently exported.

relatively low Mexican labour costs and at the same time avoid paying any Mexican import or export duties.[13]

> The situation could best be summed up as: Latin American countries have generally been viewed as preferring the luxury of pollution to the costs of managing the environment.[14]

However, the situation in Mexico has been changing in recent years. Mexican citizens have had some success in placing environment on the political agenda due to a number of internal and external factors, and the Mexican government itself sees the need for controls on pollution because of the resulting effects on human health.

First, when the United States adopted a National Environmental Policy Act in 1969, Mexico, in turn, decided to draft its first National Environmental Law, enacted in 1971.[15] Second, although the Mexican political system exhibits numerous structural features that hamper the development of environmental policy, successive administrations have managed to develop progressive environmental safeguards such as direct incorporation of legal procedures for addressing environmental pollution into the constitution.[16] Third, since the early 1970s, intense

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[13] Taylor, Charles R. North America: The New Competitive Space. The Conference Board, Inc. Report number 960. 1991. p.11.

[14] Mumme, Stephen P., Richard C. Bath, and Valerie J. Assetto. "Political Development and Environmental Policy in Mexico." Latin American Research Review. Vol. 23, No.1, 1988. p.13.

[15] Ibid. p.12.

[16] Ibid. p.12.

domestic pressure to act on environmental concerns has come from many quarters and includes opposition parties, mass protests by labour and civic groups and criticism from elites, e.g. the middle class and professionals.

In response to organized public concern, the de la Madrid administration (1982-1988) embarked on a three point program to clean up the environment. It included a popular consultation process based on a national strategy to educate the public and government on environmental issues; the creation of the Secretaria de Desarrollo Urbano y Ecologia (SEDUE) responsible for urban planning and the creation of reserves like Parks and Ecological Zones; and the revision of the 1972 environmental law with additional limited regulatory and enforcement policy.[17] Vigorous efforts by environmentalists were instrumental in creating national parks, wildlife preserves, and various other facilities, which promoted tourism and offered some permanent protection for a small number of areas that were encompassed in these important but isolated initial efforts. However, Mexico's environmental policy reform efforts have met with considerable opposition from both environmentalists and business interests. There are a number of cases in which SEDUE has moved against particularly flagrant contaminators. While these actions are laudable, and the government intends them as warnings against other producers, the private sector is still not undertaking

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[17] Ibid. p.18.

large-scale programs to redesign its productive facilities to conserve energy or reduce environmental contamination.[18]

When comparing the U.S., Canadian and Mexican enforcement systems, it must be remembered that Canada, Mexico and the U.S. enact, develop, implement and enforce their laws, regulations and standards within fundamentally different legal systems and frameworks. The United States and Canada have a common law tradition, built upon reliance on an independent judiciary to interpret law and resolve disputes among adversaries. In the U.S., litigation in court plays a significant role in enforcement. Mexico, has a civil law tradition which depends largely on administrative mechanisms and negotiation between parties to both settle disputes and enforce the law. This has resulted in greater relative power being vested in the executive governmental bodies to take unilateral actions, and greater use of administrative rather than judicial authority to achieve enforcement.[19]

Critics charge that environmental reforms are characterised by a preventative and planning approach to environmental amelioration instead of enforcement.[20] Officials of the

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[18] Barkin, David. "State Control of the Environment: Politics and Degradation in Mexico." Capitalism, Nature and Socialism. Vol. 2, No. 1, 1991. pp.98-99, note 11.

[19] United States Trade Representative. Review of U.S.-Mexico Environmental Issues (DRAFT). Prepared by an Interagency Task Force, October, 1991. p.34.

[20] Mumme, Stephen P., Richard C. Bath, and Valerie J. Assetto. "Political Development and Environmental Policy in Mexico." Latin American Research Review. Vol. 23, No.1, 1988. p.14.

Subsecretaria de Ecologia, the agency responsible for the protection of the ecology, defend the government's initiatives maintaining that their mandate is not to police, enforce or close down industry. Instead they are obliged to prevent industry's closure by encouraging solutions in the form of credits, incentives and the training of industry personnel.[21] Not everyone is pleased with the results of voluntary compliance, many claiming that the government's commitment to serious regulatory action has been feeble.[22] For example, under the present system, government entities like Petroleos Mexicanos (PEMEX) and the Comision Federal de Electricidad[23], the largest sources of industrial pollution in the country, are entirely responsible for their own environmental activities.[24] Unfortunately, other current realities in Mexico, such as election irregularities and continued repression of political dissent, the economic austerity program implemented to curtail the debt, and internationalization of industry in the global economy, may be a detriment to the future of Mexico's ability to protect its ecology.

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[21] Ibid. p.25.

[22] Ibid. p.24.

[23] About 71% of Mexico's electricity is produced by thermal installations, 27% by hydroelectric facilities, and 2% from geothermal sources.

[24] Mumme, Stephen P., Richard C. Bath, and Valerie J. Assetto. "Political Development and Environmental Policy in Mexico." Latin American Research Review. Vol. 23, No.1, 1988. p.28.

The advent of free trade negotiations between the United States and Mexico actually renew fears in opposition circles that Mexico will be forced to bargain away environmental protection in order to secure a reasonable deal with the United States. Cuauhtemoc Cardenas, the leader of the Party of the Democratic Revolution (PRD), maintains that in spite of the alleged benefits of the agreement, the possible costs in the environmental area of the deal are substantive and underline Mexico's extremely weak bargaining position. Potential losses to Mexico include giving up exclusive control over the oil industry and the ability of future governments to implement social programs, and to pursue regional development of food self sufficiency. Notably, anti-free trade opponents in Canada have also raised these concerns. According to Cardenas, Mexican negotiators have left themselves in an "untenable negotiating position" since they have already unilaterally liberalised trade in a fashion that practically no other market economy has, and as a result, "have surrendered their bargaining power in exchange for nothing."[25]

What ever the final outcome of the trilateral free trade negotiations, U.S. and Canadian investment in Mexico will increase as will Mexican penetration of U.S. and Canadian markets because of the reality of globalization.[26]

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[25] LAWG Letter. "Open for Business: Canada - Mexico - U.S." No. 45. The Latin American Working Group (LAWG), Toronto. pp.2 & 45.

[26] Taylor, Charles R. North America: The New Competitive Space. The Conference Board, Inc. Report number 960. 1991. p.29.

ENVIRONMENTAL LEGISLATION AND REGULATION

This section briefly compares and contrasts the legislative and regulatory processes of the three jurisdictions involved in the NAFTA negotiations. First looking at the United States, followed by Canada with British Columbia as a subsection, and finally, with greater emphasis, Mexico.

United States

The U.S. operates under a constellation of statutes called 'a framework of substantive' rules. These include:

(a) The Clean Air Act, and its amendments of 1990, setting uniform federal standards. Responsibility for achieving the standards falls on the states, subject to federal approval of the plans that are proposed.

(b) The Clean Water Act, setting limitations for priority pollutants based on Best Available Technology (BAT)[27]. These limitations are translated as specific standards for categories of point sources (industrial and public).

Note that standards are set federally, states devise compliance plans and the federal statutes are enforceable by judicial means including litigation. Other statutes such as The Ocean Dumping Ban Act, the Safe Drinking Water Act and the SuperFund legislation, "The Comprehensive Environmental Response Compensation and Liability Act", follow the same pattern.

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[27] Canadian regulations refer to "Best Available Control Technology" (BACT).

Canada

Again, a number of Federal Acts of Parliament apply including the Federal Environmental Assessment Review Act, the Pest Control Products Act and the Food and Drug Act, the Fisheries Act and the Canadian Environmental Protection Act (1988), Amended (1989). The latter act contains elements of the Environmental Contaminants Act (1975), the Clean Air Act (1971), the Ocean Dumping Control Act (1975) and Part III of the Canada Water Act.

Close examination of the philosophy of the operation of CEPA reveals that while it does not directly establish statutes, it achieves the same end by a short series of steps described below. It is administered jointly by Environment Canada and Health and Welfare Canada. A holistic approach is adopted in which danger to ecosystems (air, water, soils, and marine environment) is combined with risk to public health.

Turning to the practical application of CEPA, the following takes place:

(a) Section 12 - Ministers compile a Priority Substances List (also found in the U.S. statutes Clean Air and Clean Water).

(b) The list containing 44 substances is published.

(c) Substances on the list are investigated to determine whether they are toxic.

(d) The Minister of Environment under Section 16 and 18 can require (under threat of penalty) toxicological or quantitative information and samples from persons (i.e. industry).

(e) Subsequently the substance may be deemed toxic if it "is entering or may enter the environment in a quantity or concentration or under conditions:

i) having or that may have an immediate or long-term harmful effect on the environment;

ii) constituting or that may constitute a danger to the environment on which human life depends; or

iii) constituting or that may constitute a danger in Canada to human life or health."[28]

(f) As the next step the two ministers place the substance on the list of Toxic Substances (Section 33(1)) and recommend regulations be enacted.

Currently, because of the ongoing Constitutional discussions, it is slightly ambiguous as to which level of government enforcement of such regulations would fall. Federal statutes would, presumably, take precedence over provincial statute. The Federal government handles strategic decisions while the provinces handle operational responsibilities.

British Columbia

In the Ministry of Environment's Waste Management Branch, the approach has been to apply the Waste Management Act (1979) containing "British Columbia (1979) Objectives for the Discharge of Final Effluents to Marine and Fresh Water" and British

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[28] Environment Canada. Canadian Environmental Protection Act: Priority substances list assessment report no.2 -- Effluents from Pulp Mills Using Bleaching. Minister of Supply and Services, Ottawa. 1991. pp.1+2.

Columbia (1979) Objectives for Gaseous and Particulate Emissions in setting Waste Management Permits on a site specific basis. These permits set out the total discharge, and the rate of emission or effluent. That is to say, they are source[29] controls.

At the same time, the ministry actively collaborates with Environment Canada in establishing National Air Quality Standards. Most recently it has been involved in the Task Force on VOC (Volatile Organic Carbon) and NO_x (acid gases). Other work addresses National Drinking Water Standards and, more recently, work has been initiated on sediment standards, and standards for harm to fresh water plants and animals. In other words, both the source and ambient regulation given in the U.S. Clean Water Act, is addressed by British Columbia, but from a different approach.

It is important to note the legislative program being introduced in B.C. under the Strategic Directions for British Columbia Environment 2001 initiative. These changes will include:

-Waste Reduction (minimization) Legislation.

-Legislation and Regulations on Hazardous Waste Management.

-Legislation on Contaminated Sites.

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[29] Source controls (as in B.C.) employ emissions (mg Nm^3) or effluents (water) with values in mgL^{-1}. Permits are given in these terms as well as per tonne of production (or KWH as in hydroelectric generation.) In Mexico, permits may be given only in terms of tonnes of production.

-A new Water Management Act.

-A Clean Air Strategy for British Columbia.

-Regulations to limit the use of CFCs and Halons in B.C. by 1992.

-Review of Environmental Impact Assessment Legislation.

It is anticipated that environmentally progressive regulation including mitigation of impacts, environmental audits, decommissioning costs, and moving to zero discharge will continue to be introduced into British Columbia. The pace of these changes may be dependent on short term economic effects, but the trend is unlikely to change.

The Regulatory Approach in Mexico:

> Mexico has no interest in becoming a pollution haven for U.S. (*or other*) companies. Mexico's comprehensive environmental law of 1988, which is based on U.S. law and experience, is a solid foundation for tackling its environmental problems.[30]

As mentioned above, Mexico's environmental laws, regulations and standards are, in many respects, similar to those in the United States. The Federal Environmental Protection Law of 1982 marked the beginning of Mexico's efforts to do something about the problem of environmental degradation. But four years later, the government still had not set standards for discharges into water and air or for disposal and treatment of hazardous materials.

By 1986, standards were being prepared for solid waste disposal and for a limited number of air emissions. But only a few industries -- like the national oil company (PEMEX) and some copper smelters -- had monitoring systems to detect violations of environmental standards. In 1987, the Mexican Hazardous Waste Decree developed the first brief list of "hazardous materials," but did not regulate waste storage sites.

In 1988, a major new law, the General Law of Ecological Equilibrium and Environmental Protection, was passed to address a number of environmental problems such as pollution and nature protection. A series of "ecological technical standards" were

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[30] United States Administration. Response of the Administration to Issues Raised in Connection with the Negotiation of a North American Free Trade Agreement: Executive Summary. May 1991. p.4. Emphasis added.

subsequently issued. They covered air pollution from gasoline vehicles, cement industry ovens and sulphuric acid production, and water pollution from asbestos, copper, synthetic rubber, glass and flour production.[31]

The comprehensive Ley Ecologica (the "General Ecology Law") embodies principles similar to those incorporated in U.S legislation, and the regulations and technical standards implementing this law take an approach comparable to that taken in the United States.[32] The law decentralizes responsibility for enforcement and protection, and contains proposals for penalties against polluters[33], and for discussions with public interest groups.[34]

New facilities in Mexico must comply with the new environmental regime which means that all new Mexican investments or alterations to existing facilities in Mexico are subject to legal standards which are in general comparable to those in the

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[31] Kochan, Leslie. The Maquiladoras and Toxics: The Hidden Costs of Production South of The Border. Publication data and date unknown. p.2.

[32] Environmental Protection Agency. Mexican Environmental Laws, Regulations and Standards: Preliminary Report of EPA Findings. p.1.

[33] Fines comparable to those of industrialized nations for non-compliance, i.e. a maximum of approximately US $80,000 for first offenders or double for second offenders, suspension or closure of the violator's operations, administrative arrest for up to 36 hours, and possible imprisonment from one month to six years.

[34] Livermann, Diana M. Ecological Degradation and Environmental Security: Relationships Between the United States and Mexico. DRAFT paper, 1990. p.8.

United States[35], and an environmental impact assessment (E.I.A.) is required to show how they will comply.[36]

United States, Canadian and Mexican practices differ mostly in the degree of compliance, monitoring and enforcement. Monitoring facilities are still sparse outside Mexico City, although Mexico does plan to establish monitoring networks which will cover 60 per cent of the population. However, Mexico's environmental laws, and the government institutions such as SEDUE (Secretaria de Desarrollo Urbano y Ecologia -- Mexico's counterpart to the U.S.'s EPA and Environment Canada's Conservation and Protection Branch) have been heavily criticised for their weak powers, lack of enforcement, or narrow vision. Many of the current problems in environmental protection in Mexico can be related to the economic crisis and lack of government resources.[37] Until recently, SEDUE had only 19 inspectors country-wide. Enforcement has in the past been a key problem, but Mexico's record has been improving dramatically.

Mexican officials profess to be determined to remedy the situation. Evidence of this determination can be seen in the

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[35] Environmental Protection Agency. Mexican Environmental Laws, Regulations and Standards: Preliminary Report of EPA Findings. p.2.

[36] United States Administration. Response of the Administration to Issues Raised in Connection with the Negotiation of a North American Free Trade Agreement: Executive Summary. May 1991. p.4.

[37] Livermann, Diana M. Ecological Degradation and Environmental Security: Relationships Between the United States and Mexico. DRAFT paper, 1990. p.8.

almost eight-fold increase of the environment budget for SEDUE which has grown from $5 million in 1989 to $39 million in 1991.[38] A large percentage of this increase will be used to enhance enforcement efforts. Mexico is also negotiating an $84 million loan from the World Bank that will be used in large part to enhance industrial inspections. Anticipating approval SEDUE has already hired 100 more inspectors, 50 for Mexico City and 50 for the border area.

Mexico has taken measures to bring existing sources into compliance with its environmental regulations and standards and to demonstrate its commitment to enforcing its laws. Since 1989, these measures have included the temporary closures of 980 plants and the permanent shutdown of 82 industrial facilities for environmental violations[39], the permanent closing of a PEMEX refinery, conducting over 115 inspections in Mexico City resulting in the temporary closing of more than 70 plants.[40] The offending violator's operations can be suspended until corrective measures are taken.

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[38] United States, Administration. Response of the Administration to Issues Raised in Connection with the Negotiation of a North American Free Trade Agreement. Free Trade Negotiations with Mexico: Environmental Matters. May 1, 1991. p.3.

[39] United States Administration. Response of the Administration to Issues Raised in Connection with the Negotiation of a North American Free Trade Agreement: Executive Summary. May 1991. p.4.

[40] Environmental Protection Agency. Mexican Environmental laws, Regulations and Standards: Preliminary Report of EPA Findings. p.2.

On paper, Mexican environmental standards look good, some are as strict as U.S. standards. Unfortunately, Mexico lacks the infrastructure to enforce them. This is exemplified in a November 1990 study (reported in the New York Times) by the Mexican Government which found more than 1,000 "maquiladoras" generate hazardous wastes, but only 30 per cent had filed information on disposal of the waste as required by Mexican law.[41]

Industrial pollution and improper waste disposal are creating serious health and environmental problems on both sides of the U.S.-Mexico border. The costs of their clean-up is estimated to be many times what Mexico earns in foreign exchange each year.[42]

Critics fear a North American Free Trade Agreement will lure more American and Canadian companies south of the Rio Grande in order to take advantage of low wages and lax environmental standards.[43]

One of the major arguments against the proposed pact is not economic but ecological: the 'maquiladoras' have an unenviable track record of pollution, which is affecting the health of

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41 Quoted in Zwicky, Lynn. "Free Trade With Mexico: Risks and Opportunities." Environmental Views. Alberta Environment, Communications Branch. Summer 1991. p.6.

42 LAWG Letter. "Open for Business: Canada - Mexico - U.S." No. 45. The Latin American Working Group (LAWG), Toronto. p.8.

43 Eggertson, Laura, "Three-way Free Trade Talks To Centre on Voters' Worries." Times-Colonist, Saturday, August 17, 1991.

Americans across the border. As Stewart Hudson of the National Wildlife Federation said in his statement to the House Subcommittee on the NAFTA: "The 'maquiladora' industry... provides a case study of [the kinds of environmental catastrophes] that can happen when investment and free trade are promoted without taking into account environmental, and..., social considerations."[44] The biggest fear of environmental groups, which include Environmental Action, Greenpeace, and Friends of the Earth, is that the leaks and spills and pollution of border rivers such as the New River and the Nogales Wash will turn the border into a "cesspool", and that Mexico will end up "exporting" to the U.S. both its pollution and products made in environmentally unfriendly ways.[45]

However, U.S. negotiations appear to be intent on reducing the concentration of the production in the border area under a NAFTA agreement. Paradoxically, they see the fears of the environmental movement being realized if border preferences are continued and no NAFTA is signed.

Continued production in the border zone will exacerbate both municipal (infrastructure) and industrial sources, overloading the already taxed water systems and air sheds. Moving the

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[44] Hudson, Stewart J. Statement before the House Rules Committee Subcommittee on the Rules of the House on the North American Free Trade Agreement (NAFTA) regarding the Environmental Concerns Associated with a NAFTA. October, 16, 1991. p.5.

[45] Gwynne, S.C. "From Yukon to Yucatan." Time. Vol. 137, No. 22. June 3, 1991. p.52.

production to other parts of Mexico is in the U.S. strategic interest, from a transboundary pollution perspective. None of the U.S. NAFTA analysis indicates a concern for the overall SOE (state of the environment) within Mexico as a whole.

CORPORATE MOVEMENT TO MEXICO:

> Wage [increases], *environmental protection*, national health insurance, liability lawsuits, anything that raises the cost of production makes us more uncompetitive and threatens our economy.[46]

Whether the basic premise that flight from environmental regulation is a motivation for relocation in Mexico is true can only be determined by answering these two questions:

(1) Did relocation occur to avoid expensive environmental regulations (e.g. infrastructure costs, capital equipment costs, pollution control technology costs)?

(2) If not, is lax pollution enforcement an added advantage?

The first of these would be a primary motivation as distinguished from a contributing factor.

Six conditions[47] have to be considered in order to ascertain whether the environmental (abatement) cost is the determining factor:

(1) What is the relative per cent of total costs actually spent on pollution abatement? It has been calculated that the average cost of abatement (U.S.) is only 1.1 per cent of total costs. Eighty-six per cent of all industries (U.S.) have abatement costs under 2 per cent. Because total pollution abatement costs for most industries are minimal there is not a strong incentive to relocate.

(2) High abatement costs are concentrated in primary refining and processing industries where the goods produced already have low Mexican tariffs, the incentive

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[46] Morris, David. "Free Trade: The Great Destroyer." The Ecologist. Vol. 20, No. 5, September/October 1990. p.190. Emphasis added.

[47] First four conditions identified by the United States Trade Representative in their Review of U.S.-Mexico Environmental Issues. DRAFT. October 1991. p.7. Conditions 5 and 6 as per West.

to relocate is consequently reduced. Many of these goods have near zero duties under the Generalized System of Preference, for example phosphate fertilizers, pulp mills, wood preservatives, and primary aluminum. Therefore industry whose business is primary refining gains no advantage in relocating.

(3) If industry with high abatement requirements are capital intensive (for example pulp production), relocation involves high initial cost and is therefore unattractive.

(4) If the regulations in the three countries move toward common ground, any comparative advantage from relocation will diminish.

(5) If high abatement requirement industries are primary processing, are the necessary resources available in the area to supply manufacturer? Primary processing require resources at hand, or they are affected by transportation costs. Again pollution abatement/environmental considerations are diminished.

(6) What are the compliance costs and what would offset those costs? The industries with high pollution compliance costs and high trade barriers (111 are identified by the USTR review) have high added-value per worker. The advantage of the labour cost factor is low in those cases where compliance costs are high. Thus the two factors offset each other. Notably these industries are in the iron and steel, and in the petrochemical and petroleum refining areas, not of great current importance in British Columbia.

At present, Canadian investment in the maquiladora industry is very limited. Most recent statistics suggest that there are perhaps a dozen Canadian firms that have relocated operations in Mexico in whole or in part for the reasons of either cost or proximity to customers. Most being involved in the manufacturing of auto parts. These companies have established manufacturing facilities in maquiladora plants in order to maintain or improve their competitive position, primarily in the U.S. market, by

relocating some of their labour-intensive product lines in maquiladoras while maintaining the higher value-added and skill-intensive operations in Canada.[48] Environment is not the primary motivation.

Anecdotal information indicates that much of the Canadian auto parts manufacturing sector is already moving to Mexico in anticipation of continental free trade. Among these firms are Custom Trim Ltd., Dicon System Ltd., the Dominion Group Inc., Fleck Manufacturing Inc., Ideal Equipment Co. Ltd., Noma Industries Ltd.,[49] Sheller-Globe, and Kimberly-Clark,[50] all were formerly based in Ontario.

The following case illustrates the difficulty of identifying the impact of maquiladora production on "Canadian" production and investment: the trail between Canadian production facilities and Mexican production facilities is often a circuitous one.[51] Bendi x Safety Restraints Ltd. of Collingwood, Ontario, is a subsidiary of the U.S. company, Allied Signal Inc. This company was downsizing its Canadian facility as a result of the loss of contracts to major auto assemblers. At the same time, the

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[48] Grant, Michael, et al. The Implications of Mexico's Maquiladora Industry for the Canadian Economy. The Conference Board of Canada. June 1991. p.vii.

[49] Ibid. p.18.

[50] Appel Molot, Maureen. "What We Need Are More Answers." Policy Options Politique. Vol. 12, No. 3. April 1991. p.3.

[51] Grant, Michael, et al. The Implications of Mexico's Maquiladora Industry for the Canadian Economy. The Conference Board of Canada. June 1991. p.20.

company was reorganizing its North American production between Canadian, U.S. plants and its Ciudad Juarez maquiladora. However, the Canadian plant has lost jobs to Allied Signals plants in the U.S. plants and a certain amount of the U.S. production has, in turn, been transferred to the Ciudad Juarez plant.

According to a study prepared by the Conference Board of Canada the most important factors that led these companies to establish manufacturing facilities in the maquiladoras were low labour costs, competitive pressures, good labour productivity and quality, and proximity to their most important export destination -- the U.S. market. Not surprisingly, environmental regulations ranked last in a list of nine important factors influencing Canadian companies' decision to invest in Maquiladora facilities.

Other sources claim that the "attraction that the Maquiladoras hold for industry include the Mexican government's hands-off attitude toward environmental protection[52], low Mexican labour costs, and the fact that Mexico allows 100 per cent foreign ownership of maquiladora plants." In regards to

[52] For example, as emission standards have become more stringent in the southern U.S. states, industry from California is relocating to the maquiladora. Specifically, furniture and woodworking manufacturers which use solvent-based stains and lacquers are relocating as the Los Angeles district aims to virtually eliminate the substances altogether by 1996. The solvent based coatings produce ozone smog through photosynthesis and were responsible for 3 per cent of all hydrocarbons sent into the air above the Los Angeles basin before 1988. (See Sarah Richardson. Trade, Environment and Competitiveness. Draft Background Document. National Round Table on the Environment and the economy. October 1991. p.36, note 57.)

furniture manufactures it has been reported that 28 wood - furniture makers originally based in southern California moved to Mexico in search of cheaper labour and less restrictive environmental rules.[53] The result is that the pollution that California sought to eliminate remains, but it now originates a few miles away, across the border.[54]

British Columbia Job Loss

> In most cases it is practically impossible to trace specific jobs lost in Canada to their reappearance in Mexico. Often there is no direct connection. Nevertheless, according to the research of the Canadian Labour Congress 36 companies, including General Motors, Ford, General Electric, Whirlpool (Inglis), Northern Telecom, Black and Decker, Motorola, IBM, Johnson and Johnson, Johnson Controls, Campbell Soup, Electrolux, Leviton Manufacturing, Northern Abrasives, Outboard Marine, Square D, and Westinghouse, have all closed facilities in Canada causing the loss of 11,064 jobs. These same companies have invested heavily in the maquiladora.[55]

According to data gleaned from the Canadian Labour Congress research, for one reason or another (recession, U.S.-Canada FTA, globalization of markets and the economy, etc.) 16 companies based in British Columbia have closed facilities in 1990,

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[53] Gwynne, S.C. "From Yukon to Yucatan." Time. Vol. 137, No. 22. June 3, 1991. pp.52-53.

[54] AFL-CIO. Exploiting Both Sides: U.S.-Mexico 'Free' Trade. February 1991. p.7.

[55] Nancy Riche, CLC executive vice-president. "Statement to the Standing Committee on External Affairs and International Trade, September 28, 1990." In Canadian Labour Congress Free Trade Briefing Document: No. 7. January, 1991. p.37.

including Alberta Wheat Pool (grain storage, Vancouver), B.C. Packers (fish processing, Victoria and Steveston), Bogardus Wilson Ltd. (glass products, Vancouver), Brights (winery, Surrey), Continental Can (cans/packaging, Vancouver), Fletcher Challenge (forest products, Delta and plywood, Coquitlam), Johnson Matthey (electronics, Trail), Kimberly Mine Cominco (lead zinc, Kimberly), Lamford Forest Products (forest products, Sooke), MacMillan Bloedel (plywood, Port Alberni), Moli Energy Ltd. (batteries/electronics, Vancouver), Pacific Elevators (grain storage, Vancouver), Quintette Coal (coal mining, various communities), Slocan (forest products, various communities), Westar (forest products, various communities), Weyerhauser (forest products, Princeton and sawmill, Merritt) causing the loss of approximately 28,000 jobs.[56]

As mentioned above the closures result from takeovers, mergers, downsizing, shifting of production to locations in the United States and the Mexican maquiladora, and other forms of corporate restructuring. There is no clear link between the specific closures in British Columbia with corporate movement to Mexico. But as previously stated, the trail between British Columbian/Canadian production facilities and Mexican production facilities is often a "circuitous one."

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[56] Data taken from the "CLC Job Loss Register." In Canadian Labour Congress Free Trade Briefing Document No. 7. January 1991. pp. 45-82.

The dynamic effects of a free trade agreement would vary from sector to sector. In some areas, the relocation to Mexico of labour intensive and less integrated parts of the auto and consumer electronics, agriculture, and processed food industries might well accelerate. Telephone companies in the United States and Canada, in addition to engineering firms should benefit from Mexico's program to upgrade its public sector.[57]

However, it is not clear the extent to which labour (social costs) rather than environmental control costs are responsible for the corporate movement to Mexico. Factoring out infrastructure costs that are environmentally related (eg. sewerage, clean water), and which would affect labour costs in Canada, is difficult.

In Canada and the U.S., the governments set standards to protect the health and safety of workers and provide some enforcement. In Mexico, no such standards have yet been set to protect workers from exposure to industrial chemicals in plants, although new regulations are being developed on specific materials. But enforcing such standards will require resources not currently available. Environmentalists are concerned that if these standards become accepted within a trade agreement, there will be increased pressure from corporations on government agencies to "level the playing field," i.e., lower the standards

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[57] Grant, Michael, Stelios Loizides and Mahmood Iqbal. The Implications of Mexico's Maquiladora Industry for the Canadian Economy. The Conference Board of Canada. June 1991. p.22.

for environmental protection and workers health and safety. Workers will find themselves in the position where they are being asked to "choose" between their jobs, the environment or their health.[58]

A recent report revealed that scientists tested water at 23 border locations (near Mexican industrial parks). They found evidence that 75 per cent of the sites were discharging toxic chemicals directly into public waterways. Water sample measurements taken near one plant owned by General Motors showed concentrations of xylene, a toxic solvent, 6,300 times as high as the standard for U.S. drinking water[59]. In one river alone, 100 toxins were found--including 13 of the 16 hazardous materials used by nearby factories to make printed circuit boards.[60]

The state of the environment in Mexico is addressed further in the following section.

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[58] B.C. Working Group On Canada-Mexico Free Trade. Que Pasa? A Canada - Mexico "Free" Trade Deal. March 4, 1991. p.6.

[59] Elmer-DeWitt, Philip. Cites a report issued in mid-May by the National Toxic Campaign Fund, a Boston-based environmental organization in "Love Canal in the Making." Time. Vol.137, No.20. May 20, 1991. p.59.

[60] Reibstein, Larry. "A Mexican Miracle?" Newsweek. May 20, 1991. p.42-45.

STATE OF THE ENVIRONMENT IN MEXICO

> Journalists in many countries now use Mexico City as the environmental horror story of the century. The image of unbreathable air, mountains of garbage, overcrowding, and rampant disease do little to help Mexico's international business or conservation reputation. Certainly, pollution and crowding in Mexico City are affecting the health and productivity of its citizens, and hence the economy and administration of the country. Problems of waste disposal and water supply are particularly acute, and air pollution has reached dangerous levels in recent winters.[61]

The aggressive industrial expansion in Mexico was initially concentrated in the Valley of Mexico (not along the border area), were Mexico City is situated, with 35,000 factories being built. The ring of 54 hills surrounding the Valley creates a smog 'enclosure' (inversion) significantly worse than Los Angeles, especially since the northern industrial area funnels (by the prevailing wind) pollution into the residential areas.

The PEMEX refinery closure and subsequent designation of the area as a new forest, a place 'del arbros' is seen as a promise to the people. However, the 6000 tonnes per day of air pollutants, from 3 million cars and industry is choking the city. Controls and regulations are difficult to implement, witness the circumvention of the one day a week restriction on automobiles in Mexico City through the purchase of a second vehicle by the affluent.

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[61] Livermann, Diana M. Ecological Degradation and Environmental Security: Relationships Between the United States and Mexico. DRAFT paper, 1990. p.8.

Notably, the 'Group of 100' -- intellectuals dedicated specifically to environmental rescue are articulate and influential. Their message is based not in ecological degradation, but in public health threats, a more powerful persuader. This position is backed up by studies which have revealed:

- 500 mothers were checked prenatally, 60% had lead levels likely to impair babies at birth.
- 250 children, from newborn to 3.5 years old are being studied, many showing 'lead baby syndrome' -- affecting motor reflexes, brain function and intellectual development.

(Clearly the movement to lead free gasoline is achieving only a small impact in the face of these sobering studies.)

Respiratory and cardiac problems abound in the winter season, made most poignantly obvious through a 30 - 40% absenteeism rate during the winter months. Children complain of their eyes burning and heads hurting. Many wear masks to avoid direct inhalation of particulate which can be literally seen when coughed up. For the 4 million children 'on the streets' the situation is even more desperate.

Clearly the city's condition is critical. Possible extreme solutions have ranged from:

(1) Reduce population by 6 - 9 million people.

(2) Have 60% of the industry leave the Valley outright (no pollution control can cope with the present number.)

(3) Use 2 atomic devices to remove 2 of the adjacent hills to allow for flow-through ventilation.

In the present circumstances of population growth and growth in automobiles, pollution is not thought to have peaked, authorities expect a further doubling of pollution by the year 2000. Only St. Johns, the Fraser Valley and the Windsor to Quebec corridor can even be compared and then only in CO, Ozone, NO_x and VOC. We lack the lead and sulphur add-ons of the uncontrolled automobile emissions and high sulphur fuel of Mexico City.

These illustrative though anecdotal comments underscore the inevitable priority of air emission (and solid waste control - an indirect air problem) in the government agenda in Mexico, driven by increasing public pressure. Further deliberate deterioration by siting additional point sources (in the form of new industry) is unlikely.

Water, Land and Air:

The starting point for objective assessment must be that the current level of environmental degradation in water, land and air in Mexico is a major component of social and economic planning in the short-term. Overriding basic public health needs -- immediate threats to human, animal and plant life -- are in evidence in the population centres. It is necessary to contrast the episodic nature of environmental concern in Canada and the U.S with the overwhelming environmental problems in Mexico. Although the political will and the laws are present indicating an appreciation of the crisis situation, both, the necessary

human and financial resources are not available. Mexico is an example of extensive industrialization (based partially on its available energy supplies) that has not made provision for infrastructure as a basic cost of the industrialization. Now demographics and debt have largely denied the option of improved infrastructures to deal with environmental degradation. Industrial air emissions, non-treated effluents and untreated hazardous waste are all at crisis levels in production areas and major urban centres. Ironically, the area of the maquiladora is sustained at a higher environmental level, by an increasingly higher level of air, surface and ground water hazardous waste controls, as well as ecological protection (Tijuana River/San Diego Bay) (Rio Grande/Rio Bravo estuary), by a series of joint undertakings by Mexico and the U.S.

The problems through out Mexico, as well as in the border zone, by interpolation are staggering:

- Burning open dumps (landfills are few) create trans-border visibility and odour problems.

- Joint water treatment is undertaken to prevent raw sewage and industrial waste water crossing the border at both San Diego/Tijuana and the other twinned cities. (Mexicali/Calexico, Nogales/Nogales, Ciudad Suarez/El Paso, Nuevo Laredo/Laredo, Matemorus/Brownsville, McAllen/Reynosa, Eagle Pass/Predro Negras, Del Rio, Ciudad Acona, and Yuma/San Luis Colorado).

- The U.S. shares many problems in having 200,000 people living in "Colonias" on its side of the border (Texas and New Mexico) without sanitation and in most cases without water supply.

- The air pollution problem is more deeply rooted than the progressive legislation would suggest:

- Truck diesel fuel is high sulphur, with no abatement on emissions.

- Unleaded gas is available only in cities, car fleets have been stripped of pollution devices. Cars operate at 1960's - 70's levels of emissions.

- Industrial and power generation is based on extensive use of high sulphur heavy (unrefined diesel) fuel. Natural gas penetration is only 25 per cent, and limited by the resource base.

Based on a Canadian Embassy, April 1990 update[62], the following excerpted statistics and observations provide a sobering overview of the situation in Mexico as a whole.

Water

Mexico City, Guadalajara and Monterrey generate 62.7 m^3/second liquid waste ($1m^3$ = 1000 litres). This translates into 5.4 million cubic metres a day or 5.4 billion litres a day.[63] Sixty-two per cent of this comes from the general population and 38 per cent from industrial sources.

"Mexico lacks the necessary waste treatment plants to process these materials."[64]

"A $2 million project is underway to restore the Lerma river, the Guadaloupe Lake and Laguna de Zumpango."[65] In contrast, engineering planning alone for Greater Vancouver

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[62] Canadian Embassy. Market Study on Pollution and Environmental Control in Mexico. Commercial Division, Canadian Embassy, Mexico City. April 1990.

[63] Ibid. p.8.

[64] Ibid. p.8.

[65] Ibid. p.8.

Regional District (GVRD) secondary sewage treatment is $80 million, and the Canadian government's Green Plan Fraser River Cleanup is costed at $100 million.[66]

"Untreated blackwaters[67]" cause serious pollution problems since they find their way from Mexico City all the way to Tampico on the Gulf of Mexico.[68]

The main emphasis of Mexico's water legislation is on water purification to make residual waters reusable for industry, agriculture, irrigation and drinking[69] (not for ecological reasons).

The sources of industrial contamination are varied:[70]

industries
- oil wells
- petrochemicals
- agricultural chemicals
- biological and radioactive factors

Specific industries include: sugar, paper and cellulose, and chemical and petroleum.[71]

"These industries have been approached by SEDUE to persuade them to treat and recycle their waste."[72]

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[66] As per West.

[67] Refers to water which has become extremely polluted from industrial and residential effluent.

[68] Canadian Embassy. opt cit. p.8.

[69] Ibid. p.8.

[70] Ibid. p.8.

[71] Ibid. p.9.

[72] Ibid. p.9.

Waste

"Since 1989, all industrial waste producers are required to fill out the Hazardous Waste Declaration form consisting of a 15 point questionnaire on what wastes the company generates and how it intends to dispose of them."[73]

Regardless, "Every day in Mexico City, 15,000 tons of domestic waste and 20,000 tons of industrial waste are produced, of which 5,000 tons are considered "highly dangerous". Of these, only one per cent is properly treated or destroyed, the rest finding its way into the urban drainage system, clandestine dumps or industry backyards."[74]

In spite of this apparent inconsistency, some initiatives are showing good faith:

"Waste recycling plants include six public plants processing 35 million litres of solvents a year in addition to 15 million litres processed by privately owned recycling plants, nine plants recycling 60 million litres a year of used oil..."[75]
It is not clear whether recycling is motivated by financial necessity, or by environmental reasons.

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[73] Ibid. p.9.

[74] Ibid. p.9.

[75] Ibid. p.9.

Dupont, Dow Chemical, Colgate Polmolive and 3M are devising special strategies to cope with problems in Mexico City. There is a possibility that expensive "retro-fitting" may be necessary.

Air

"It is estimated that over 23 per cent of all air pollutants in the country are concentrated in Mexico City, the largest city in the world..."[76]

"Of the motor vehicles, 33 per cent are over 12 years old and another 27 per cent are between eight and twelve years old. Over 70 per cent of all cars and buses are in poor mechanical condition and operate inefficiently due to the high altitude. In addition, almost none of the vehicles circulating in Mexico carry anti-pollution devices."[77]

Note that in 1988-90 there were 5,405 inspections by 100 inspectors in the whole of Mexico. Their work resulted in three permanent closings, 980 partial or temporary closings, 29 relocations, 1032 negotiated agreements, and 679 voluntary agreements. We can compare these statistics to the number of industrial sources of air pollution. Notably there are 33,000 industrial sources of air pollution around Mexico City of which

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[76] Ibid. p.6.

[77] Ibid. p.7.

15,000 have been classified as severe polluters. These include[78]:

electrical energy generation plants
smelters and foundries
pulp and paper mills
soap and detergent manufacturers
asbestos plants
chemical plants
cement plants
refineries
plastic producers
ceramics producers
paint and solvent producers
food processing plants
textile industries
sugar refineries
bakeries
and public baths

"Two thermoelectric power plants located in Mexico City generate some 36 per cent of the sulphur dioxide expelled into the air, through the use of heavy crude as fuel."[79]

The foregoing synoptic comments only provide a snapshot of the severe air, water, and solid waste (land) contamination in Mexico. By any standards of public health, these problems have reached crisis levels in the urban areas of Mexico. The extent of the problem is exemplified by the expenditures being made by U.S. border cities and states to stabilize the immediate public health hazards in these areas.

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[78] Ibid. p.7.

[79] Ibid. p.7.

FINANCIAL and TECHNOLOGY ENFORCEMENT CONSTRAINTS:

As previously mentioned, Mexico is in the process of increasing its financial commitment to the protection and improvement of its environment. However, the magnitude of the problem is beyond the limited financial and technological capabilities of Mexico. The increased funding is 'just a drop in the bucket' compared to what Canada and the United States are spending on environmental monitoring equipment and facilities. The following is an attempt to illustrate this point.

It is highly significant that Mexican regulations do not address trace organics or metals. Much of our new regulation and enforcement in Canada is driven by high-tech analysis and indirectly by risk analysis applied by Health and Welfare via Environment Canada or Fisheries and Oceans. Dioxins are a case in point. For example, the $500 million being spent on pulp mills in British Columbia is aimed at AOX (Adsorbable Organo Chlorine, including furans and dioxins.) It would not be spent in Mexico. The analysis alone, at $1200 a sample would, consume their **entire** monitoring budget of $2.77 million (U.S.). It is clear that the "sophistication" of control and monitoring drives up the relative costs of compliance. It is instructive to consider the recommendation of the Environment Canada's Task Group on Effluents from Pulp Mills using Bleaching:

> The members... believe that mandatory reporting by mills of their output of organically bound chlorine and a range of chlorophenolic compounds in effluents, water, sediments or biological tissues should be established

> Environmental effects monitoring should also be required. Given the difficulty of dealing with these contaminants, and their transformation products, future regulations if necessary should place maximum emphasis on preventing the formation of chlorinated organic compounds through the use of alternative technologies and better process control. Properly designed and managed secondary effluent treatment will also reduce the organic chlorine loading the aquatic environment.[80]

Pollution controls must be seen as increasing operating costs as well as increasing initial investment costs. Additional costs are also incurred in the decommissioning of the factory, and in changing the process to reduce waste production. For example, the B.C. Hazardous Waste Corporation proposes to place waste minimization as a higher priority than disposal.[81]

The Case of Dioxins

Dioxins are priority pollutants. The priority pollutants list is subscribed to by the U.S., Canada (including B.C.), Taiwan, and Korea (to name just a few.) Some 100 are identified in the U.S. Clean Air Act, and in various provincial regulations. Risk analysis requires 1 in 10^6 (one in a million) incremental lifetime mortality risk for priority pollutants-- a value applied in British Columbia's Port Hardy Ferrochromium review recently for Chromium VI.

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[80] Environment Canada. Canadian Environmental Protection Act: Priority substance list assessment report no. 2 -- Effluents from pulp mills using bleaching. Minister of Supply and Services, 1991. p.42.

[81] As per West.

Typically, technologically limited countries, for example Taiwan, and Korea, rely on a limited set of basic parameters. For example, in Mexico, SEDUE specifies Ozone, CO (Carbon Monoxide), SO_2, NO_x (acid gases), and Total Suspended Particulate (TSP). More sophisticated parameters, VOC (Volatile Organic Carbon) and PM_{10} (Particulate minus 10 microns), already included in the (U.S.) Clean Air Act are currently proposed by Mexico but not now in force.

Significantly, British Columbia 1979 Air Objectives would also appear to be lacking in rigour even though the VOC and NO_x task force is well advanced in planning for changes, and current waste permits (Celgar II)[82] anticipate new criteria.

It should be noted that human health factors motivate more action than do ecological concerns. In B.C., for example, dioxins from pulp mills generated more concern about human health than the log booms in coastal areas generated regarding the destruction of habitat and salmon spawning grounds from the deposition of bark.

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[82] Report of the Federal Provincial Assessment Review Panel Celgar II. As per West.

SECTORAL ANALYSIS:

Background:

It would appear that Mexico has been achieving its rapid export growth by by-passing many U.S. import-sensitive industries and going directly into the kinds of secondary manufacturing that Canada has long sought -- e.g., power generation equipment, telecommunications equipment, and electrical equipment. One can conclude that Canada cannot afford to have Washington unilaterally decide which U.S.-Canadian industries will be sheltered from Mexican-based competition through transnational provisions. It is important that Canada sit at the negotiating table. "The assumption is that any U.S.-Canadian consultations will not be enough and that Canada must be in the game when the dealing begins."[83]

Canadian shipments into the Mexican market are highly concentrated in wheat and canola (a vegetable oil source) from the three prairie provinces, sulphur from Alberta, and wood-pulp from British Columbia. These four items accounted for over 80 per cent of export shipments to Mexico over a three year period (1987-89).[84]

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[83] United States International Trade Commission. Review of Trade and Investment Liberalization Measures by Mexico and Prospects for Future United States- Mexican Relations. Phase II: Summary of Views on Prospects for Future U.S.-Mexico Relations. USITC Publication 2326, Washington. October 1990. p.1-26.

[84] Chambers, E.J. and Percy, M.B. "The Mexican Hat in the Free Trade Ring: Western Canada and the U.S-Mexico Free Trade." Western Perspectives. Canada West Foundation,Calgary, September 1990. p.6.

There are several areas in which Canadian expertise could find a market in Mexico. These include agriculture, fishing, forestry and pollution control. For example, agricultural productivity in Mexico is low, thus forcing Mexico to import significant amounts of basic foodstuffs. This means that, while Canada will never be able to compete effectively with Mexico in areas such as horticulture and tropical food products, Canadian experience in many agricultural areas represents a comparative advantage.[85]

In regards to energy production, Mexico's sheer potential as a supplier of petroleum products would require the Canadian government to give particular attention to any U.S.-Mexico agreement affecting this sector in order to ensure that the U.S. market share of western Canadian production is not unduly affected. The direct impact of improved Mexican access to the Canadian market in coal, petroleum, and natural gas, would, appear limited.[86]

Critical acute health problems in major cities, notably Mexico City, seems to drive much of the air quality legislation. The "Valley of Mexico" is particularly vulnerable. In total, 9 critical zones have been identified, with two on the border. In

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[85] Royal Bank of Canada. "Mexico-U.S. free trade talks: Why Canada should get involved." Econoscope. September 1990. p.11.

[86] Canada, Department of Finance. Canada and a Mexico-United States Trade Agreement. International Economic Relations and International Trade and Finance Branch, Working paper. July 1990. p.9.

fact, mobile and fixed source urban air pollution mitigation on an emergency basis is perhaps the hallmark of competitive Mexican environmental regulation.

Qualified progress has been made including requiring catalytic converters on 1991 cars, exclusion of industrial activities from the Valley of Mexico, driving restrictions (limitation of vehicles entering Mexico City on specific days of the week), control over gasoline formulation, introduction of non-leaded gas, etc...

However, such factors as average car age that is much longer in Mexico, and automobile inspection that is not systematic due to lack of inspectors still combine to make ambient air in Mexico City some of the worst in any urban centre in the world.

Water quality enforcement clearly lags. There is concern, in particular, for the quantity of water available to supply the expanding population in northern Mexico. It seems that the border areas' natural resources cannot handle the extra economic development free-trade advocates foresee. Moreover, the water supply that exists is largely contaminated due to the daily dumping of raw sewage and a myriad of industrial chemicals. In 1986, the San Francisco Examiner quoted an EPA official as saying that the New River "contains every disease known in the Western Hemisphere."[87]

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[87] Richardson, Sarah. Trade, Environment and Competitiveness. DRAFT Background Document. National Round Table on the Environment and the Economy. October 1991. p.37.

So far water has not been formally talked about in the proposed three way trade talks. "But the American's new rights of access to Canada's water," viz. the Canada-U.S. FTA, "puts this resource squarely on the American side of the table in their dealings with Mexico, indeed, all continental water sharing schemes on the drawing boards -- including the Grand Canal -- show Canada's water flowing south through the U.S. and into Mexico."[88] If, in the future, water were to be diverted from Canada-B.C. to the southern U.S. and Mexico, their longer growing seasons could place Canadian agricultural production in jeopardy.

In regards to hazardous wastes, the Mexican government did not develop a list of regulated wastes until 1987 and is still trying to bring it into line with U.S. standards. Maquiladora plants that bring materials into Mexico for use in manufacturing are required to send the waste out of the country for disposal. EPA records on wastes shipped back from Mexico, however, account for only a fraction of the chemical debris of the border plants. In November, 1988, the Mexican Environmental Protection Agency (SEDUE) issued a regulation requiring all industries using toxic chemicals, including Maquiladoras, to register with the government and submit monthly reports on waste production. The new law provides for stiff fines (as much as U.S. $70,000) and prison terms of up to six years. Three months after the registration rule took effect, SEDUE's chief aide for pollution

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[88] B.C. Working Group On Canada-Mexico Free Trade. Que Pasa? A Canada - Mexico "Free" Trade Deal. March 4, 1991. p.4.

control programs said no reports had been received from any Maquiladoras.[89]

The maquiladoras are already generating waste at a pace that exceeds Mexico's capacity to handle it. The situation could deteriorate further as new firms enter the country.

On a product by product basis, Canadian export interests in Mexico would appear to be concentrated in sectors where Canada has traditionally benefitted from a comparative advantage.[90] In the following sectoral analyses the items in bold type following the specific sector headings represent the principal Canadian export products for that sector as identified by the Canadian Department of Finance in their July 1990 working paper.

It is worthwhile to note that less than 10 per cent of all industrial sources in Mexico hold waste discharge permits (both air and water). Aggregating sufficient data for inter sectoral comparisons of waste permitting is clearly difficult for (A) Pulp and Paper (saw mills), (B) Mining and Smelting, and (C) High Technology Manufacturing.

Ecological or biological yardsticks or indicators are similarly difficult to use. Coastal zone contamination is extensive particularly near shipping, industrial harbours and

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[89] Richardson, Sarah. Trade, Environment and Competitiveness. Draft Background Document. National Round Table on the Environment and the Economy. October 1991. p. 39, note 69.

[90] Canada, Department of Finance. Canada and a Mexico-United States Trade Agreement. International Economic Relations and International Trade and Finance Branch, Working Paper. Ottawa, July 1990. p.13.

population centres. Canals and waterways have high Biological and Chemical Oxygen Demand (BOD and COD), and suspended solids from domestic and industrial discharge. Consequently, since Mexican waterways are close to a non-life support situation, U.S. and Canadian water quality parameters are often relatively difficult to apply.

The following discussion of 3 target sectors will include a brief description of that sector in Mexico, the implications of a free trade agreement on British Columbia's corresponding sector, and a brief discussion on the possible reasons for corporate movement, if any, within the sectors.

FORESTRY: Wood, pulp, and paper: sawn wood; plywood; shakes and shingles; pulp of wood; fluting paper.

The forest products industry in Canada accounts for a trade surplus of nearly $20 billion, surpassing the total trade surplus of the agricultural, fisheries, energy and mining sectors combined, employing 349,000 directly and 1,000,000 indirectly. With the U.S. and the European Community being, respectively, Canada's two largest markets for forest products, the $3.3 billion (1989) export market faces major demands in order to maintain its competitiveness in a global market.

About 49 million hectares (representing 24% of the land base) of Mexico is classified as forested, containing such valuable woods as mahogany, ebony, walnut, and rosewood, of which 30 per cent is exploited. All timber cutting is strictly regulated by the government. The industry is concentrated in Chihuahua, Durango and Michoacan states. The main use is the production of dimension lumber for construction, which takes nearly 40 per cent of the output. Cellulose and fuel account for the remainder. Mexico is a net purchaser of wood-pulp, with imports rising in recent years.

Deforestation is a serious problem, with about 370,000 ha being lost each year. The main cause is that the land is being cleared for alternative uses such as crops and livestock.

Paper and paperboard production is constrained by environmental concerns over deforestation.[91]

With regards to companies in the forestry sector that have moved to Mexico because of lower labour costs or laxer environmental standards, the following is the only example that is discussed in the literature or through personal contacts. Louisiana-Pacific[92], has closed one of its California plants and has built a state-of-the-art sawmill in Suarez, Mexico, 60 miles south of San Diego. American logs and unfinished lumber are being barged to this remanufacturing plant where they are processed and returned to the U.S. The Mexican workers are paid low wages (U.S. $1.00-$1.60 per hour with no benefits) and Mexican environmental and safety regulations are not strictly enforced.[93]

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[91] Chambers, E.J., Percy, M.B. "The Mexican Hat in The Free Trade Ring: Western Canada and U.S.-Mexico Free Trade." Western Perspectives... Canada West Foundation, Calgary. September 1990. p.6.

[92] An American based company with operations in British Columbia. ·e B.C. government provided favourable financing concessions to uisiana-Pacific to locate a waferboard plant near Fort St.John.

B.C. Working Group On Canada-Mexico Free Trade. Que Pasa? A nada - Mexico "Free" Trade Deal. March 4, 1991. p.1.

HIGH TECHNOLOGY MANUFACTURING: Mining and smelting: asbestos; nickel; aluminum; magnesium; and bismuth. Iron and steel products: rails.

Mining

Formerly, almost all mining companies in Mexico were foreign-held. Most, however, cooperated with government efforts in the 1960s to Mexicanize the industry, and majority control of each company is now held by Mexicans. Although, in light of continuing liberalized investment policy in Mexico, foreign nationals may now hold controlling interests again.

The most valuable mineral resource is petroleum, produced chiefly in the Veracruz, Tabasco, and Chiapas states; production is controlled by Petroleos Mexicanos (PEMEX), a government agency. Also important is silver, which is found in every state. Rich gold fields are located on the Pacific slopes of the Sierra Madre Occidental; copper ore is mined near Guanajuato; iron ore is found in Coahuila and in Durango. In the mid-1980s, annual output (in metric tons) included 5 million of iron ore, 181,560 of copper ore, 206,640 of lead, 273,840 of zinc, 518,300 of phosphates, 69.5 million troy ounces of silver, and 233,400 troy ounces of gold. Production of crude petroleum was 1.1 billion barrels; natural gas, 28.1 billion cubic meters; and of coal, 7.8 million metric tons. Significant quantities of antimony, barites, fluorite, graphite, manganese, sulphur, and tungsten were recovered.

In the area of iron and steel, transportation costs and quality factors make it unlikely that Mexican steel will make

inroads in the near future into Canada's major U.S. steel markets.

As mentioned above, Mexico is a major producer of copper, lead, gold, silver and zinc. Prices are established on world commodity exchanges and Canada is considered to be competitive internationally. The sector is not expected to be affected by either a bilateral or trilateral agreement.[94]

With regards to companies that have moved to Mexico because of lower labour costs or any other reasons the literature does not reveal any such movement. However, it is worthwhile to note that the Mining Association of British Columbia is in support of a North American Free Trade Agreement that will see a lowering of trade barriers.[95]

FOOD PROCESSING: Frozen fish; prepared or preserved fish; and crustaceans. Horticultural products.

Fish

Mexico is a nation with about 11,500 km of rich Pacific and Gulf coastline, not to mention inland waters covering more than 2.9 million hectares. The most important fisheries are found off the coast of Baja California. The fishing industry is primarily controlled by cooperative societies that are granted

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[94] Ibid. p.3.

[95] As per Susan Campbell of the Mining Association of British Columbia.

monopolies of certain species. Fishing accounts for only some 0.3 per cent of GDP.

However, production has been growing: the catch amounted to an estimated 1.52 million tons in 1989 compared to 1.08 million tons in 1983. In 1990 the total catch rose by a further 5 per cent, although the haul of the main species fell. The shrimp catch fell by 14 per cent partly because of problems to do with the inadequacy of the fleet. The sardine haul fell by 2.4 per cent because of a rise in the temperature of the sea off the Pacific coast. Shrimp exports dropped from $338 million in 1989 to $267 million. Tuna exports were also adversely affected because of a ban imposed by the U.S. and Europe to protect dolphins.

A free trade agreement that linked Canada and Mexico would not likely have major trade implications for the fishery sector. However, B.C. Fisheries feel it would be negative.[96]

With regard to companies that have moved to Mexico because of lower labour costs or for any other reason, none were identified in the literature or elsewhere.

Horticulture and Agriculture

About 24 per cent of the Mexican labour force is engaged in agriculture. About 15 per cent of the land is suitable for agriculture, but less than 10 per cent receives enough rainfall

[96] As per Don White from the Ministry of Development, Trade and Tourism.

for raising crops without irrigation. Irrigation projects, however, have increased the amount of land under cultivation.

Mexico's vegetable and fruit exports to Canada reached $70 million in 1989 but, due to their earlier seasons, are for the most part not in direct competition with Canadian produce.[97] Improved access (i.e. lower tariffs) to Canadian markets would impact mainly greenhouse vegetables such as tomatoes, cucumbers and peppers.[98]

Canadian suppliers have limited experience in the Mexican market due to long standing trade restrictions (import quotas, state procurement agencies, etc.), and exchange controls. Nevertheless, if these restrictions are eliminated in a North American Free Trade Agreement, there will be opportunities for ongoing sales of raw agricultural commodities (canola, wheat, barley, beans), and primary processed products (malt, flour, canola meal, skim milk powder, etc.).[99]

Among the regulatory differences between Canada and Mexico that have affected trading patterns are mandatory health and

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[97] Canada, Department of Finance. Canada and a Mexico-United States Trade Agreement. International Economic Relations and International Trade and Finance Branch, Working Paper. July 1990. p.8.

[98] Anonymous. Canadian Participation in USA - Mexico Free Trade Discussions: Preliminary Agricultural Perspectives. October 1990. p.8.

[99] Canada. Industry, Science and Technology. North American Trade Liberalization Sector Impact Analysis. Ottawa, September 1990. p.1.

sanitary standards as they apply to horticultural, plant and meat products and animals.[100]

With regards to companies that have moved to Mexico because of lower labour costs or for any other reasons, none were identified in the literature or elsewhere.

As in the case of the U.S.-Canada FTA, a trilateral U.S.-Mexico-Canada agreement is likely to exclude some of the most important barriers to trade in agriculture.[101] For example, import quotas, health standards, and price support programs are likely to remain intact in a trilateral trade agreement. It is reasonable to expect that any removal of trade barriers in these areas depends, to a large extent, on the results of the Uruguay Round of GATT negotiations.[102]

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[100] Anonymous. Canadian Participation in USA - Mexico Free Trade Discussions: Preliminary Agricultural Perspectives. October, 1990. p.5.

[101] See Michael Hart, A North American Free Trade Agreement: The Strategic Implications for Canada, p.113.

[102] Wu, Terry and Neil Longley. "A U.S.-Mexico Free Trade Agreement: U.S. Perspectives." Journal of World Trade (Law - Economics - Public Policy). Vol.25, No.3, June 1991. p.10.

LIMITATIONS OF DATA:

Statistics on environmental enforcement are inconsistent. Quantification of enforcement in terms of actual percentage of total production is lacking. On the one hand, it is stated, if agreements to install pollution control equipment are signed by over 1000 industries but on the other hand only 10 percent of industries have waste management permits. The question is which is the more significant statistic? Similarly what is the actual penalty incurred in "suspension of violators operation" (plant closures)? Were the corrective actions taken symbolic (and mechanical) or substantive and criteria driven?

These are serious impediments to understanding the data and to answering the question **Is Mexico a polluter's haven?** These statistics are presented in a socio-political system in which public dissent and questioning of such data is very restricted. Much of the contrary discussion comes from equally anecdotal American Environmental Non-Governmental Organizations' publicity:

> Several reports indicate that the *maquiladora zone* is an environmental catastrophe in the making, being compared to a "3,200 kilometre Love Canal."[103]

and:

> A November 1990 study by the Mexican government, as reported in the New York Times, found that more than 1,000 *maquiladoras* generate hazardous wastes, but only 30 percent had filed information on disposal of

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[103] As reported in Gwynne, S.C. "From Yukon to Yucatan." Time. Vol. 137, No. 22, June 3, 1991. p.52

> the waste as required by Mexican law. Only 19 percent could show they had disposed of the wastes properly.[104]

This is not to say that Mexico has not improved their environmental record for whatever reasons (political, economic, environmental, or health related.)

Since the overall environmental compliance record is lacking in reliable documentation, sectoral pollution abatement performance (for example, in pulp and paper) is even less open to assessment.

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[104] Zwicky, Lynn. "Free Trade With Mexico: Risks and Opportunities." Environmental Views. Alberta Environment Communications Branch, Summer 1991. p.6.

ANALYSIS OF THE NAFTA NEGOTIATIONS

Importance of the Environmental Issue to British Columbia

It is important to note that the U.S. analysis[105] concentrates on the implications of NAFTA for trans-border issues, i.e. what air and water effects will occur for "go" for the NAFTA or "not go" scenarios. The conclusion is clear, for the border areas at least, that no agreement is the worst option. However, from the Mexican point of view, the net effect of an agreement is to shift the social problems of their citizens away from the border, but not necessarily to alleviate them. In fact, there is a concern that the collaboration in addressing problems in the 'twinned' border cities will disappear, and that the social plight of Mexicans will be lost from view, and addressed with less urgency by Americans after a signed NAFTA.

The NAFTA can be viewed as a strategic plan by the U.S., driven by the urgency felt by their border states and cities to; (i) stabilize the ecology, environmental protection and public health factors in the border area and, (ii) relieve the demographic pressure of in-migration of foreign nationals into the American Southwest.[106] Neither of these social/environmental

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[105] United States Trade Representative. Review of U.S.-Mexico Environmental Issues. DRAFT, October 1991.

[106] If all of the maquiladoras were shut down tomorrow, many jobs would not return to the United States. Instead they would go to Taiwan, Hong Kong, Singapore or Korea. The choice for the United States, then, is not so much to keep jobs or lose them to Mexico but rather to ask: When jobs go abroad, wouldn't the U.S. prefer them to go to Mexico rather than Asia, and help diminish the incentive to migrate to the United States.

issues is of direct consequence to British Columbia either in trade, or relocation of industry.

In fact, it can be argued that there will be increased pressures on the Mexican government that result from the lack of shared environmental programs now available at the border without NAFTA. Such pressures may result in an enhanced uncertainty for investment: social instability resulting from acute air and water quality problems. The sheer size and population momentum of Mexico City and Monterrey would suggest that this negative environmental factor for relocation is not insignificant.

Mexico City in particular is at saturation with respect to new industry because of pollution problems. In turn, these problems create public health effects that deteriorate workforce effectiveness. Mexico may not be able to take advantage of NAFTA opportunities for such reasons.

It is important to note that investment decisions in the future, at least by current assessment of factors affecting globalization of economies will depend principally on infrastructure (services, waste management etc.) and on quality of work force.

These factors are likely to be optimized when environmental degradation and accompanying public health factors are minimized. Consequently, high environmental standards/regulations may be viewed as a competitive advantage in the future. Two conclusions present themselves:

(1) Strategic planning by firms will then increasingly drive them to avoid pollution havens, and

(2) Jurisdictions such as Mexico will move to improve infrastructure and improve environmental quality.

Direct and indirect taxation ("polluter pay" approach) to support overall infrastructure programs can negate lower abatement costs. Expensive reto-fitting to achieve "best available control technology" (BACT) standards not initially included in "Greenfield"[107] plant designs are an additional reason to avoid "polluter havens."

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[107] Current literature makes a distinction between "greenfield" and "evergreen" industrial installations. The former are installations that were built/designed without the capacity to incorporate new pollution abatement technology as it becomes available, whereas the latter have been built/designed in a modular fashion to accommodate the change and facilitate the incorporation of improved pollution abatement technology.

The Environmental Service Sector in Mexico: A Role for British Columbia

There has been an assessment that the fledgling environmental industry in B.C. is too small to take advantage of improved access to Mexican markets.

Some evidence supports that view. For example, Canada is a net importer of environmental technology from Mexico, $37 million (mainly gas purifiers) in imports against $4.46 million in exports in 1989.[108]

However, more access in the service sector internationally is likely to be a principal benefit to Canada in the current Uruguay round of GATT, and there is considerable expertise in the high technology industry in B.C., particularly in water pollution control technology and in the environmental impact assessment, remote sensing and geographic information systems (GIS) areas.

It would be prudent to further assess opportunities for growth in this area, particularly in conjunction with the emerging technologies emphasis of Industry, Science and Technology Canada and other agencies.

In regards to pollution abatement, the following three points summarize the future prospects in NAFTA countries.

1) As NAFTA places additional international exposure on Mexican environmental problems, there will be a shift in emphasis in assistance programs to environmental protection. In the last three years, the Canadian International Development Agency (CIDA)

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[108] As per West.

has begun such a response in other countries. These monies generally flow to strengthening regulatory and inspection powers, often concentrating on personnel training programs (particularly in the South Pacific).

Clearly, a small investment in this area can have a dramatic leverage effect on the rate of closure of the gap between real compliance (abatement) costs in Canada and a range of foreign trading partners, particularly in the developing world. Real compliance is the product of regulation and enforcement. Mutual exchange of expertise (referred to above) is increasing. For example ESSA Environmental & Social Systems Analysts Ltd. in Vancouver have recently acted as consultants in Vietnam and Malaysia.

2) The increasing trend toward higher profile for international treaties on the environment, and the realization of global change issues (CFCs and ozone depletion) is likely to stir mutual assistance programs further.

There will be a narrowing of advantage for location offshore for Canadian companies in general, and for location in Mexico in particular.

3) It is significant that GATT has resurrected its 1971 environment committee, regardless of whether any change occurs in the current round.

CONCLUSION

The concept of a "polluters haven" is a deceptively simple if not misleading perspective in estimating the potential for investment.

Strategically, social stress and the need for crisis management of environmental emergencies may actually provide disincentives for extensive capital investment in areas that have traditionally warranted that designation.

Increasingly, companies will instead seek locations with extensive stable infrastructure (waste management services) that facilitate modern technologically advanced operations, and the work force necessary to operate them.

Market forces (public perception) will further detract from pollution abatement gains in overall economic performance. International pressures will force continued destabilizing (and costly) changes in regulation in currently lax jurisdictions.

As a result, in the Mexican case, analysis is obscured by the "polluter's haven" concept. It is concluded that the presumption of positive interest on the part of the Mexican government in **improving** environmental control is the soundest basis for evaluating net environmentally related advantage for B.C. from NAFTA.

There is enough evidence of wide spread environmental degradation to conclude that a form of environmental emergency exists particularly in Mexico City. Public health impacts have raised a true internal priority that has the potential to be

destabilizing, or at least politically urgent in both near and long term. Therefore, there is no basis for assuming current Mexican policy is deliberately lax, or statements deceptive (albeit optimistic).

There is every reason to interpret the American response as being related to environmental and political strategic national interest with respect to their Southwest border. The ecological and public health crisis is documented (somewhat fragmentarily) for the border area. The internal social commitment by the U.S. to achieve a high norm for environmental protection on all its own soil is sufficient to drive the search for a remedy in NAFTA as the overriding environmentally related issue for the Americans.

The EPA analysis for the Bush administration is crafted in terms of net border effects, not net Mexican SOE effects. Emphasis on demographic (immigration effects) underscore the strategic nature of the Bush approach.

For the Americans the environmental issue is twofold: (1) trans-boundary threat, (2) effects on competitiveness. Only the second factor affects Canada and British Columbia.

The second effect is a composite of several considerations, (net-cost factors), as follows:

(1) Capital investment on pollution control.

(2) Abatement or operation costs, including monitoring and other compliance regimes.

(3) Provisions for infrastructure that may be demanded from companies in a worsening social situation (specifically hazardous waste disposal).

(4) Possible repercussions of the acceptance of Green accounting by GATT (including externalities as legitimate subsidies of production).

(5) Destabilizing social effects of "crisis" degradation.

(6) Importance of competitive infrastructure in determining employee effectiveness in increasingly sophisticated production climates.

Against these considerations, a savings through reduced abatement expenditures for specific sectoral industries must be assessed.

In summary, primary resource based, low tariff, difficult to relocate (capital intensive), industries have high abatement costs. Such industries are not labour intensive, currently not subject to high priority for re-investment in the changing global economy.

These considerations are largely generic and may form a template for consideration of the environmental issue in competitiveness discussions involving other trading partners.

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